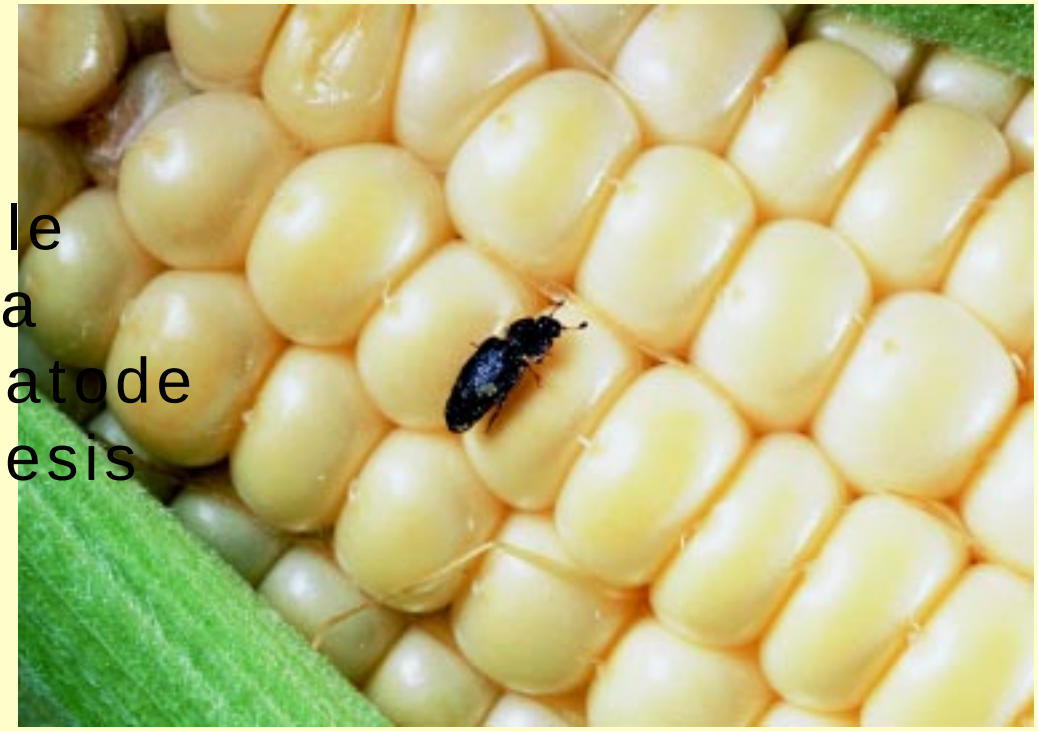
Sap Beetle Has a Nematode Nemesis

KEITH WELLER (K7588-19)



Sap beetle, *Carpophilus lugubris.*

A newfound species of nematode may be part of the solution to controlling a familiar and costly corn pest: the sap beetle, *Carpophilus lugubris*.

Agricultural Research Service scientists discovered the elongated, threadlike nematode, *Psammomermis nitiduesis*, living in sap beetles collected near Illinois cornfields in 1992.

But only female nematodes could be reared from the first infected sap beetles culled from the fields. Finally, scientists successfully reared the first males in 1995, enabling the species to be officially cataloged.

Patrick F. Dowd, an ARS entomologist in the Mycotoxin Research Unit at the National Center for Agricultural Utilization Research in Peoria, Illinois, says that 80 percent of the sap beetles taken from the field in early spring were infected with the new nematode.

"The sap beetle can be a major sweet corn pest," says Dowd. "It can be as economically important as corn earworms and corn borers in some areas of the Corn Belt."

It also spreads toxic fungi to crops like field corn. The black, quarter-inch-long adults feed on corn plant residues left in the field after harvest, Dowd explains.

"This residue often contains the spores of *Aspergillus* and *Fusarium*, which are fungi that not only damage crops but produce toxins harmful to humans and animals."

Later, when growing corn plants pollinate, adult sap beetles fly to them and spread the fungal spores as they feed on fresh pollen that falls into the corn plants' leaf axials.

The fungi grow and thrive in the warm and moist environment created at the leaf axials. Their colonies become a ready source of spores that passing beetles or caterpillars can pick up and transport to the corn ear when they feed on the kernels. And sap beetle larvae, which resemble fly maggots, move deep into corn ears, damaging sweet corn and rendering it unacceptable to consumers.

Scientists believe the *P. nitiduesis* nematode enters the body of the beetle in late summer, when beetle larvae are pupating in the soil. The nematode is large—about 20 times as long as the sap beetle, Dowd says. "It is somewhat surprising the beetle can survive for as long as it does with this large parasite inside it."

Scientists are studying ways to move infected sap beetles into areas where *P. nitiduesis* doesn't exist, so the nematode can be used as a biological control agent.—By **Dawn Lyons-Johnson,** ARS.

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